

WHAT IS CLAIMED IS:

1. An electromagnetic apparatus for automatically and selectively supplying and shutting off fluid, comprising:

5 a frame unit coaxially contained in piping or a housing forming the flow path of a fluid;

a through unit having one or more through holes to form one or more flow paths through the frame unit;

a coil unit placed in the frame unit to generate an
10 electromagnetic force;

a rotor facing the frame unit to selectively open and close the flow paths through interaction with the electromagnetic force generated in the coil unit;

a shaft supporting the rotor; and

15 a casing supporting the frame unit and forming an appearance of the apparatus.

2. The electromagnetic apparatus as set forth in claim 1; wherein:

20 the frame unit comprise upper and lower frames placed in upper and lower portions of the electromagnetic apparatus, respectively; and

the coil unit comprises coils that are placed in the upper and lower frames, respectively, and are connected in
25 serial to each other so that an attractive force and a

repulsive force are simultaneously generated and applied to the rotor.

3. The electromagnetic apparatus as set forth in claim 1
5 or 2, wherein the frame unit is provided with a coil so that the rotor is opened or closed by an attractive force or a repulsive force.

4. The electromagnetic apparatus as set forth in claim 1,
10 wherein the frame unit is provided with a core unit so that a magnetic path of the electromagnetic force generated in the coil unit is formed and the rotor performs a holding operation after cutoff of power.

15 5. The electromagnetic apparatus as set forth in claim 1, wherein the frame unit is integrally made of resin so that durability is improved and an entire portion of the frame unit except for the flow paths is closed.

20 6. The electromagnetic apparatus as set forth in claim 1, wherein the frame unit is provided with one or more flat or circular projections or sealing members at a top surface of the frame unit, which makes contact with one surface of the rotor, to prevent leakage of fluid at a time of shutoff.

25

7. The electromagnetic apparatus as set forth in claim 1, wherein the frame unit is provided with shaft guide holes at centers thereof so that a shaft is supported to be rotated by the shaft guide holes.

5

8. The electromagnetic apparatus as set forth in claim 1, wherein the rotor is provided with protrusions on a first surface of the rotor to allow higher and lower portions to exist in a same circle and, thus, form flow paths, and one or
10 more flat or circular projections or sealing members on a second surface of the rotor, which makes contact with the frame unit, to prevent leakage of fluid at a time of shutoff.